

# CURRICULUM VITAE

## PERSONAL INFORMATION

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Name: Haibin Sun

Gender: Male

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Research Direction: graphene and metal nanomaterials for synthesis, SERS and photoelectricity

## EDUCATION & EXPERIENCES

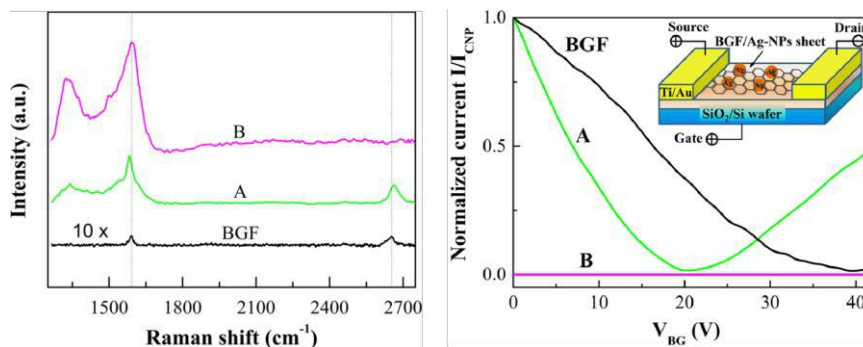
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- 2011-2015: Ph D. in the Condensed Matter Physics under the supervision of Prof. Dr. Jianguo Wan and NA. Guanghou Wang  
National Laboratory of Solid State Microstructures and College of Physics Nanjing University, Nanjing, P. R. China
- 2006-2011: Lecturer, in the College of Physics and Electronic Engineering, Xinyang Normal University, Xinyang, P. R. China
- 2003-2006: M. S. in the College of Physical engineering, Zhengzhou University, Zhengzhou, P. R. China
- 1999-2003: B. S. in the College of Physics and Electronic Engineering, Xinyang Normal University, Xinyang, P. R. China

## RESEARCHING EXPERIENCE AND ACHIVEMENTS

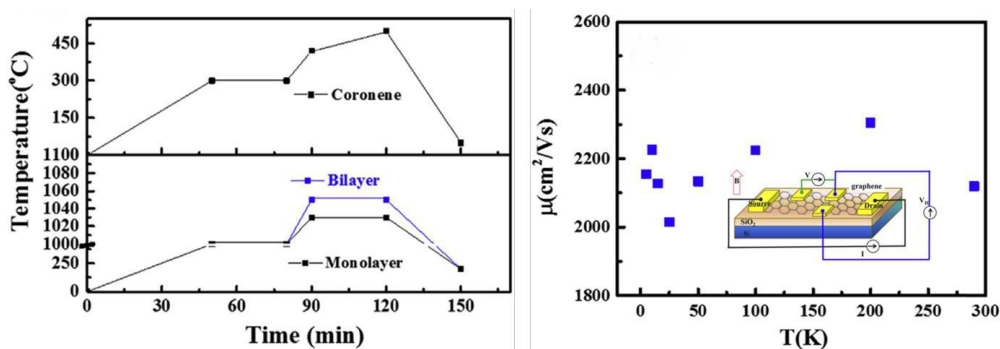
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- Great surface-enhanced Raman scattering in hybrids consisting of graphene and silver nanoparticles with large particle sizes**, *Applied Physics Letters*, 2015, 106, 211603.



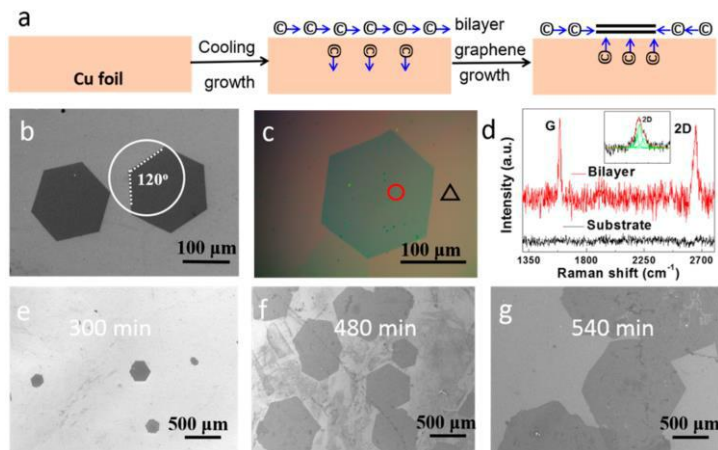
We have prepared graphene-veiled-nanoparticle hybrids by depositing a bilayer graphene film on silver nanoparticles with large particle sizes, 200 nm. The hybrids possess good thermal stability and exhibit great surface-enhanced Raman scattering with enhancement factors of 49- and 21-fold for the G and 2D peaks, respectively. Accordingly, we confirm the charge transfer and interaction between the Ag-NPs and graphene with the electrical and optical absorption measurements.

**2. Synthesis of large-area monolayer and bilayer graphene using solid coronene by chemical vapor deposition, *Carbon*, 2016, 108, 356-362**



We proposed a simple and effective method to synthesize mono- and bilayer of large-area graphene films on Cu foils under APCVD conditions, with solid coronene as the precursor. Compared with methane-based graphene growth, graphene grown with coronene is more accessible because coronene contains six-fold rotational symmetry and planar configuration. Further, Raman spectroscopy, TEM imaging and the electrical characteristics of as-grown graphene by coronene confirm that the number of graphene layers have been precisely controlled by adjusting the growth temperature.

**3. Cooling Growth of Millimeter-Size Single-Crystal Bilayer Graphene at Atmospheric Pressure, *The Journal of Physical Chemistry C*, 2016, 120, 13596-13603.**



We developed a synchronization growth method to successfully produce large-size, AB-stacked, single-crystal bilayer graphene on Cu foils under the NI-APCVD process. By using the different strategies of oxidation of Cu foils in pure Ar, longtime annealing in H<sub>2</sub>, slower growth rate, and lower CH<sub>4</sub> flow rate, the graphene nucleation density can be reduced to 2 nuclei mm<sup>-2</sup>. This enables us to successfully produce giant AB-stacked single-crystal bilayer graphene with grain size exceeding 1 mm. The formation of ultra large single-crystal bilayer graphene is attributed to the synchronization growth mechanism under the nonisothermal process.

## PUBLICATIONS

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1. **Sun Haibin**, Fu Can, Shen Xia, Yang Wenchao, Guo Pengfei, Lu Yang, Luo Yongsong, Yu Benhai, Wang Xiaoge, Wang Chunlei, Xu Junqi<sup>\*</sup>, Liu Jiangfeng, Song Fengqi, Wang Guanghou, Wan Jianguo<sup>\*</sup>. Directed growth of graphene nanomesh in purified argon via chemical vapor deposition. *Nanotechnology*, 28, 245604 (2017).
2. **Sun Haibin**<sup>\*</sup>, Xia Yanjie, Zhang Chongwu, Du Jianghui, Yang Wenchao, Guo Pengfei, Xu Junqi<sup>\*</sup>, Wang Chunlei, Jia Yonglei, Liu Jiangfeng. Enhanced Raman scattering of graphene by silver nanoparticles with different densities and locations *Materials Research Express*, 4: 025012 (2017).
3. Xu Junqi<sup>\*</sup>, Fu Can, **Sun Haibin**<sup>\*</sup>, Meng Lanxiang, Xia Yanjie, Zhang Chongwu, Yi Xiaolei, Yang Wenchao, Guo Pengfei, Wang Chunlei and Liu Jiangfeng. Large-area high-quality monolayer graphene from polystyrene at atmospheric pressure. *Nanotechnology*, 28, 155605 (2017).
4. **Sun Haibin**<sup>\*</sup>, Xu Junqi, Wang Chunlei, Ge Guixian, Jia Yonglei, Liu Jiangfeng, Song Fengqi, Wan Jianguo. Synthesis of large-area monolayer and bilayer graphene using solid coronene by chemical vapor deposition. *Carbon* 108, 356-362 (2016).
5. **Sun Haibin**, Han Yan, Wu Jun, Lu Yang, Xu Junqi, Luo Yongsong, Song Fengqi, Wang Guanghou, and Wan Jianguo<sup>\*</sup>. Cooling Growth of Millimeter-Size Single-Crystal Bilayer Graphene at Atmospheric Pressure. *J. Phys. Chem. C.*, 120, 13596-13603 (2016).
6. **Sun Haibin**, Wu Jun, Zhu Jiejun, Pan Danfeng, Wang Guanghou, Wan Jianguo<sup>\*</sup>. Great surface-enhanced Raman scattering in hybrids consisting of graphene and silver nanoparticles with large particlesizes, *Applied Physics Letters*, 106, 211603 (2015).
7. **Sun Haibin**<sup>\*</sup>, Ge Guixian, Zhu Jiejun, Yan Hailong, Lu Yang, Wu Yaozheng, Wan Jianguo, Han Ming, Luo Yongsong<sup>\*</sup>. High electrical conductivity of graphene-based transparent conductive films with silver nanocomposites, *RSC Advances*, 5: 108044-108049 (2015).
8. **Sun Haibin**, Wu Jun, Han Yan, Wang Junyong, Song Fengqi, Wan Jianguo<sup>\*</sup>. Nonisothermal Synthesis of AB-Stacked Bilayer Graphene on Cu Foils by Atmospheric

Pressure Chemical Vapor Deposition, *The Journal of Physical Chemistry C*, 118:14655-14661 (2014).

9. Wang Jue, **Sun Haibin**, Pan Haiyang, Ding Yanyue, Wan Jianguo, Wang Guanghou, Han Min\*. Detection of hydrogen peroxide at a palladium nanoparticle-bilayer graphene hybrid-modified electrode, *Sensors and Actuators B: Chemical*, 230: 690-696 (2016).
10. Ge Guixian, **Sun Haibin**, Han Yan, Song Fengqi, Zhao Jijun, Wang Guanghou, Wan Jianguo\*. Reversible switching of magnetic states by electric fields in nitrogenized-divacancies graphene decorated by tungsten atoms, *Scientific Reports*, 4: 7575 (2014).
11. Zhou Mingxiu, Chen Bo, **Sun Haibin**, Wan Jianguo\*, Li Ziwei, Liu Junming, Song Fengqi, Wang Guanghou. Local electrical conduction in polycrystalline La-doped BiFeO<sub>3</sub> thin films, *Nanotechnology*, 24, 225702 (2013).